CLAIMS

1. A lithographic apparatus comprising:

- an illumination system configured to condition a radiation beam;

- a support constructed to support a patterning device, the patterning device being capable of imparting the radiation beam with a pattern in its cross-section to form a patterned radiation beam; wherein the support is arranged to subject, at least when the support is accelerated, a first side of the patterning device to at least one first force normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is counteracted by frictional forces occurring at a contact area between the patterning device and the support, wherein the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated.

2. A lithographic apparatus according to claim 1, wherein the first and second side of the patterning device are situated substantially opposite each other.

3. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to provide the at least one second force substantially coinciding with the at least one first force.

4. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to provide the at least one second force while minimizing areas of contact of which frictional forces can act between the clamping device and the patterning device when the patterning device is accelerated with respect to the clamping device.

5. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to exert the at least one second force actively.

6. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to exert the at least one second force passively.

7. A lithographic apparatus according to claim 1, wherein the clamping device is removable.

8. A lithographic apparatus according to claim 7, wherein the clamping device is actively connectable to the support.

9. A lithographic apparatus according to claim 7, wherein the clamping device is passively connectable to the support.

10. A lithographic apparatus according to claim 1, wherein the clamping device is connected to the support.

11. A lithographic apparatus according to claim 10, wherein the clamping device is arranged to dynamically exert the at least one second force when the support is being accelerated.

12. A lithographic apparatus according to claim 11, wherein the clamping device comprises at least one mass which accelerates differently with respect to an acceleration of the support, each mass thereby capable of generating a force that is transmissible for exerting the at least one second force.

13. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to provide additional contact area for enhancing the frictional forces needed to overcome to cause acceleration of the patterning device relative to the support when the support is accelerated.

14. A lithographic apparatus according to claim 1, wherein the clamping device is arranged to abut the support.

15. A lithographic apparatus according to claim 1, wherein the lithographic apparatus is provided with a handler for handling the patterning device with respect to the support, wherein the handler is also arranged to handle the clamping device.

16. A support constructed to support a patterning device which is capable of imparting a radiation beam with a pattern in its cross-section to form a patterned radiation beam;
wherein the support is arranged to subject, at least when the support is accelerated, a first side of the patterning device to a clamping force , wherein the support is associated with a clamping device which is arranged to subject a second side of the patterning device, extending in a plane that is non-coinciding with the first side, to an additional clamping force, at least when the support is accelerated.

17. A support according to claim 16, wherein the first and second side of the patterning device are situated substantially opposite each other.

18. A support according to claim 16, wherein the clamping device is connected to said support by clamping elements.

19. A support according to claim 18, wherein said clamping elements comprise vacuum suction tubes.

20. A support according to claim 19, wherein the clamping device is shaped to be connected to said support by clamp fitting.

21. A support according to claim 16, wherein said clamping device comprises a resilient structure for providing said additional clamping force by push pressure.

22. A support according to claim 16, wherein said clamping device comprises a pivoting lever assembly, said lever assembly being pivotable around a pivot that is in fixed positional relationship to said support and comprising a lever part contacting said patterning means so as to provide an additional clamping pressure on said patterning means while being pivoted, and an actuator arranged to pivot said pivoting lever assembly.

23. A support according to claim 16, wherein said clamping device comprises a pivoting lever assembly, said assembly being pivotable around a pivot that is in fixed positional relationship to said support and comprising a lever part contacting said patterning means so as to provide an additional clamping pressure on said patterning means while being pivoted wherein the assembly comprises an inertial mass element, fixedly connected to the pivoting assembly so as to pivot the assembly during accelerations.

24. A device manufacturing method comprising transferring a pattern from a patterning device onto a substrate, wherein the method comprises supporting the patterning device using a support; accelerating the support;

subjecting a first side of the patterning device to at least one first force normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support; and

subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated.

25. A method according to claim 24, wherein the first and second side of the patterning device are situated substantially opposite each other.

26. A method according to claim 24, wherein the method comprises providing the second force substantially coinciding with the at least first force.

27. A method according to claim 24, wherein the method comprises providing the at least one second force while minimizing areas of contact at which frictional forces can act between the clamping device and the patterning device when the patterning device is accelerated with respect to the clamping device.

28. A method according to claim24, wherein the method comprises exerting the at least one force actively.

29. A method according to claim24, wherein the method comprises exerting the at least one force passively.

30. A method according to claim24, wherein the clamping device is movable.

31. A method according to claim30, wherein the method comprises actively connecting the clamping device to the support.

32. A method according to claim30, wherein the method comprises passively connecting the clamping device to the support.

33. A method according to claim24, wherein the clamping device is connected to the support.

34. A method according to claim33, wherein the clamping device dynamically applies the at least one second force when the support is being accelerated.

35. A method according to claim34, wherein the clamping device comprises at least one mass which accelerates differently with respect to an acceleration of the support, each mass thereby capable of negating a force that is transmissible for exerting the at least one second force.

36. A method according to claim24, wherein the method comprises providing contact area between the clamping device and the support for enhancing the frictional forces needed to overcome to cause acceleration of the patterning device relative to the support when the support is accelerated.

37. A method according to claim24, wherein the method comprises abutting of the clamping device and the support.

38. A method according to claim24, wherein the method comprises handling the patterning device with respect to the support using a handler which is also arranged to handle the clamping device.

39. A method comprising supporting a patterning device using a support;

accelerating the support;

subjecting a first side of the patterning device to at least one first force normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support; and

subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated.

40. A device manufactured using the apparatus or the support according to respectively claim 1 or claim 16.

41. A device manufactured according to the method of claim 24 or39.